INFORMATION PROCESSING APPARATUS AND
DATA COMMUNICATION METHOD

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to information processing apparatuses and data communication methods, and can be applied, for example, to processing for non-contact-type IC cards.

2. Description of the Related Art

Since non-contact-type IC cards can record various types of data and can be accessed in a non-contact manner, they are conventionally used, for example, as electronic-money recording media and for enter/leave management of a room.

In this type of IC card, a high-frequency signal induced in a built-in loop antenna is rectified to generate a driving power source. Therefore, when an IC card is held in a vicinity of a reader/writer, which accesses this type of IC cards, a high-frequency signal sent from the reader/writer is induced in the loop antenna and the IC card starts operating.

When the IC card starts operating in this way, signal processing is applied to the high-frequency signal induced in the loop antenna to analyze a command sent from the reader/writer, and in addition, various types of data sent from the reader/writer is received. The IC card also switches, for example, the terminal impedance of the loop antenna at a predetermined timing according to an analysis result of the command to send a status, data recorded into a memory, and others to the reader/writer.

A system using this type of IC card executes mutual authentication with an IC card to transmit and receive data. Data to be transmitted and received is encrypted and then transmitted and received to assure higher safety.

Since this type of non-contact-type IC card can be accessed just by holding them in a vicinity of a reader/writer, electronic-money processing and the like can be executed without passing them to a clerk, unlike conventional credit cards, and also thereby safety is assured.

Although non-contact IC cards are convenient in this way, they need to be held in a vicinity of a reader/writer while the reader/writer accesses them and executes